FIELD ASSESSMENT

The IFM team determined that the assessment needed to be efficient, sample known factors important to fire behavior or risk to buildings, and cover the broad range of conditions that exist in the wildland/urban interface of Boundary County. A method was needed that would evaluate similar field conditions in various parts of the county and assign similar fire risks.

The process selected involved driving all public roads in the county. At any point where human habitation was visible from the road, a Risk Assessment Form (Example 1.) was filled out documenting conditions around the building(s). At each viewpoint, the road number and milepost was recorded, and a note was made at the approximate location on a county road map.

In addition, the perimeters of the City of Bonners Ferry were assessed using the same Risk Assessment Form. Risk conditions were mapped for the parts of the city exposed to native forest vegetation. In the city environment, the evaluation was done on an area basis, rather on an individual building basis.

The team felt that assessing the visible homes would be an adequate sample to describe overall risks in the county. The team also recognized that time constraints did not allow for seeking permission to go on private lands or private drives to assess homes not visible from public roads. The teams personal knowledge of some non-visible homes indicated that these properties would rate out similarly to those that were visible, some being at high risk, others at moderate or low risk. A complete sample of all homes in the county is not necessary to set priorities for mitigation activities.

The Risk Assessment Form is a matrix that includes six factors that evaluate fire risk. These factors could be easily estimated from some distance from a property so that the overall risk of the buildings could be determined. The factors included:

1. ASPECT. Aspect affects fire behavior because of its influence on fuels. Some aspects are warmer than others, and are typically warmer and dryer for longer periods in a given day or season. Some aspects are directly exposed to the drying effects of sunshine, or prevailing winds, while others are only indirectly exposed to sunlight or prevailing winds. These differences affect expected fire behavior.

2. SLOPE. Slope is a factor because it generally increases the effects of wind on fire behavior. Fire generally moves uphill, and the steeper the slope, the greater the thermal effects on the fire, which translates into hotter fire and longer flame-lengths, thus higher risk.

3. WIND EXPOSURE. Exposure was chosen because wind often has the greatest effect on how a given fire burns. The more wind that can reach the base of flames, the hotter the fire and the longer the flame-lengths. Standard estimates used by fire behavior specialists were used to evaluate each situation. Wind exposure is a combination of a sites position on the topography and the height and density of vegetation on the windward side.

4. FUEL MODEL. The depth and arrangement of the fuel bed, as expressed by a Fuel Model, has a tremendous effect on expected fire behavior. We used the standard 13 fuel models fire behavior specialists use to predict fire behavior. Each fuel model will yield a different flame length under standard weather/fuel conditions. Flame length is a good estimator of the expected intensity of a fire, and can be used to predict the effects a given fire will have on the area being burned. Fuel models were ranked low to high based on the flame length that is produced under standard conditions. Short flame lengths yield low risk, long flame lengths yield high risk.

5. LADDER. The capability of fuels to act as a ladder, carrying fire from ground fuels up into the crowns of standing timber, was chosen as a factor, because the most dangerous fire is a crown fire. The closer ladder fuels are to ground fuels and the more continuous they are into the crowns, the higher the risks to nearby property.

6. BUILDING EXPOSURE. Nearness of wildland fuels to a building is an important factor. The closer these fuels are to the building, the more likely that fire burning in the fuels can spread to the building. Fire can spread to the building either by direct exposure to flames, by continued exposure to the radiant heat of the flames from some distance, or by exposure to a wave of sparks given off by the fire. The closer the burning vegetation is to a building, the higher the probability that the building will catch fire.

For each of these six factors, three ranges of conditions were established to show low, moderate or high risk when a fire occurs within one of these ranges. The ranges for each factor are shown in Example 1.

EXAMPLE 1. FIELD RISK ASSESSMENT FORM

RISK ASSESSMENT FORM

POINT IDENTIFICATION ___________
ROAD NUMBER ___________ **MP** _____

	RISK		
FACTOR	**LOW**	**MODERATE**	**HIGH**
Aspect	N, NE	NW, E, SE	F, W, SW, S
Slope	<20%	20-40%	>40%
Wind exposure	Full shelter	Partial shelter	Exposed
Fuel Model	8, 9	1, 5, 11	2, 3, 6, 10, 12, 13
Ladder (ht to crown)	>30’	10-30’	<10’
Bldg exposure (dist to veg)	>50’	25-50’	<25’

TOTALS L ____ M ____ H ____

MITIGATION: None Pile Prune Thin Chip Fuelbreak Sh Mow

On a field form, the existing conditions at each viewed property were circled for each factor. This then documented the field assessment for that building. The total number of low, moderate and high risk factors circled was noted at the bottom of the form. At each viewpoint, the types of mitigation work that would be effective on those specific conditions was noted to help get a feel for the types and total volume of work that would be necessary to do fuel mitigation work on an area or county wide basis.

This sampling technique has some limitations, but the team felt that the process would yield valuable information to help establish priorities for mitigation work. Limitations of the technique include: Only visible habitations were evaluated. Often only one limited view of the property was available. Estimates of the closeness of vegetation to the buildings were sometimes difficult to make accurately. Some of these limitations are compensating from one property to another, with one being higher risk than evaluated and another being lower. Since fuel mitigation work would occur after the team was invited on the property for a thorough evaluation of the situation, these limitations would not affect the ability for a landowner to have work done to "fire safe" the building.

MITIGATION WORK DEFINITIONS

A number of types of work that might be chosen to mitigate fire risk are listed on the form. The team had specific types of activities in mind for the work listed. These types of work were chosen because they are known to be effective in reducing expected fire behavior by modifying the depth of fuels and their arrangement in relation to other fuels.

To be clear for reader/users of this report, the type of work we will use to mitigate fuels risk defined. Some of the terminology used might imply different work to those who might use a different definition. Terms used on the form include: None, Pile, Prune, Thin, Chip, Fuelbreak, Sh, Mow.

None. The assessment observer saw no need to treat vegetative fuels around the building to reduce risk to wild fire.

Pile. Natural dead and down fuels present a risk to the building. Piling and burning could reduce this risk.

Prune. Remove live and dead branches from the lower boles of trees to reduce the potential of a ground fire being carried into the upper crowns of a timber stand. This work would most often be done to conifer saplings and pole sized trees. Near buildings, large conifer trees would also be pruned.

Thin. Cut selected conifer trees to break the continuity of crowns in a timber stand. Most often thinning will remove sapling and pole timber sized trees from the stands near buildings. This thinning work will reduce the potential for fire to be laddered into the upper canopy of the stand. Also, this will tend to keep the fire lower to the ground, with shorter flame lengths, and less damage potential. Occasional trees in excess of 10 inches DBH may need to be cut to open the canopy near a building and consequently reduce the risk of fire being carried to the building by a crown fire.